The issues for discussion

Which species and species-groups get managed?

At what level should management be applied?

- Aggregate complex (non-taxonomic relationship)
- Taxonomic groupings above species level
- Individual species level

We outline a *process* for answering these questions

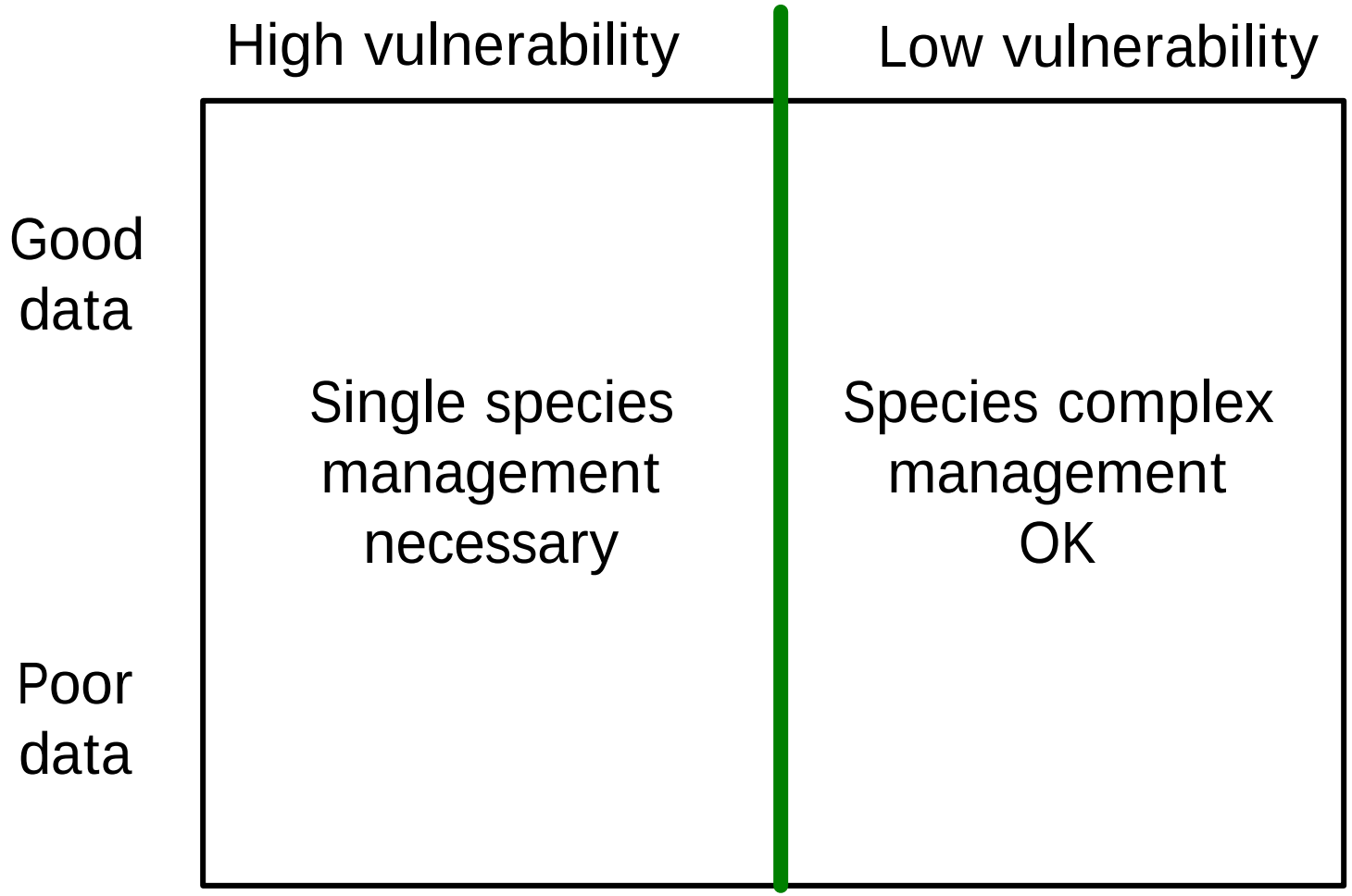
3. Handling species complexes

- Ultimate goal is a decision matrix based on data quality and vulnerability criteria

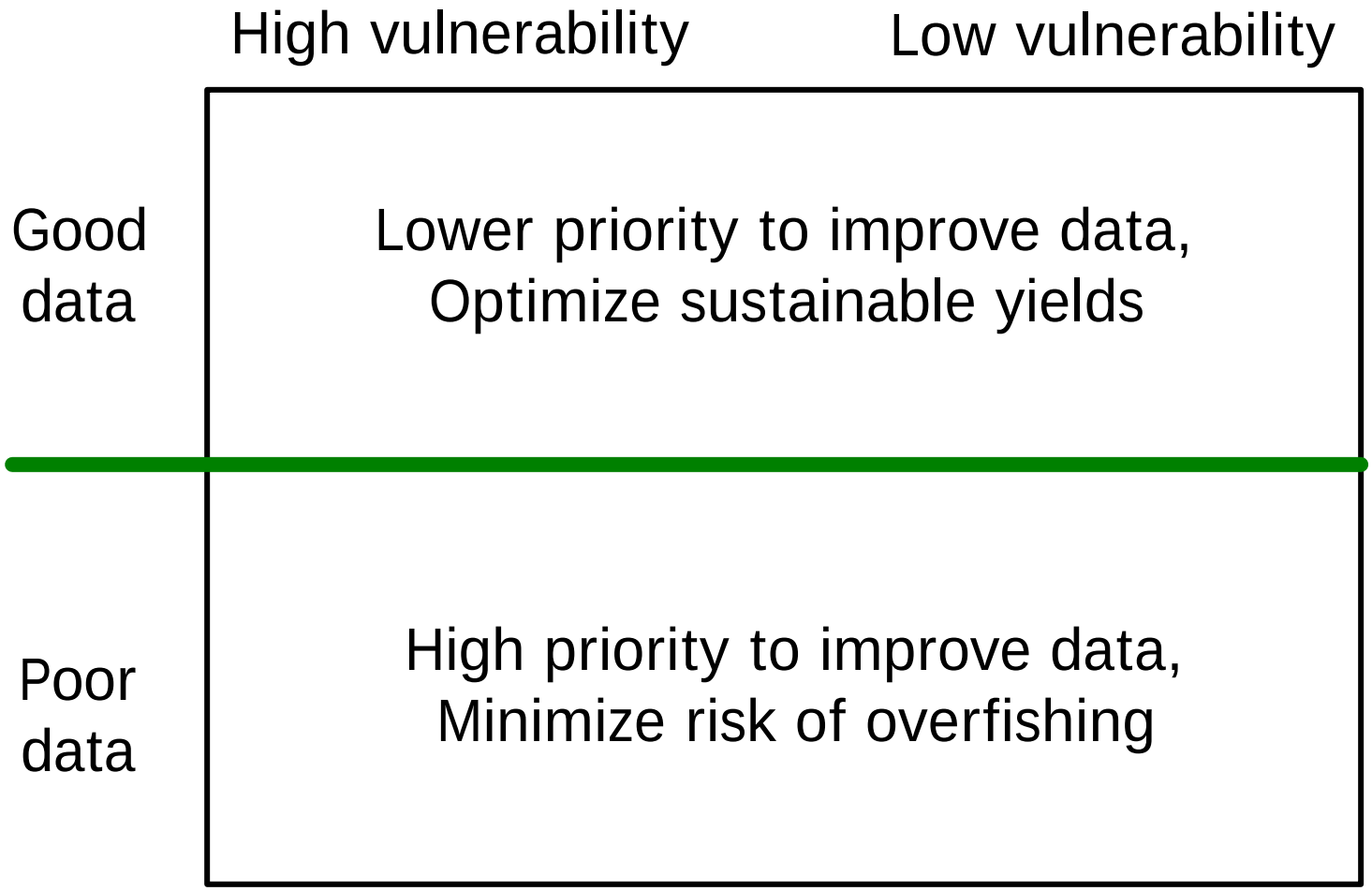
	Vulnerability	
Data Quality (tier-specific)	**high**	**low**
good survey coverage	single species	complex if needed for management or single species
poor survey coverage	single species	complex or single species
	start high quality data collection interim quality, precautionary	collect additional data if possible
	no directed fishery alternative management strategies	
	under alternative management schemes, low MRB, area/time closures, creative thinking.	

- How we are getting there?
  - Assemble a list of data quality for all current complexes
  - Evaluate vulnerability of species within complexes

The goal—a decision making tool



The goal—a decision making tool



Management priorities fall out

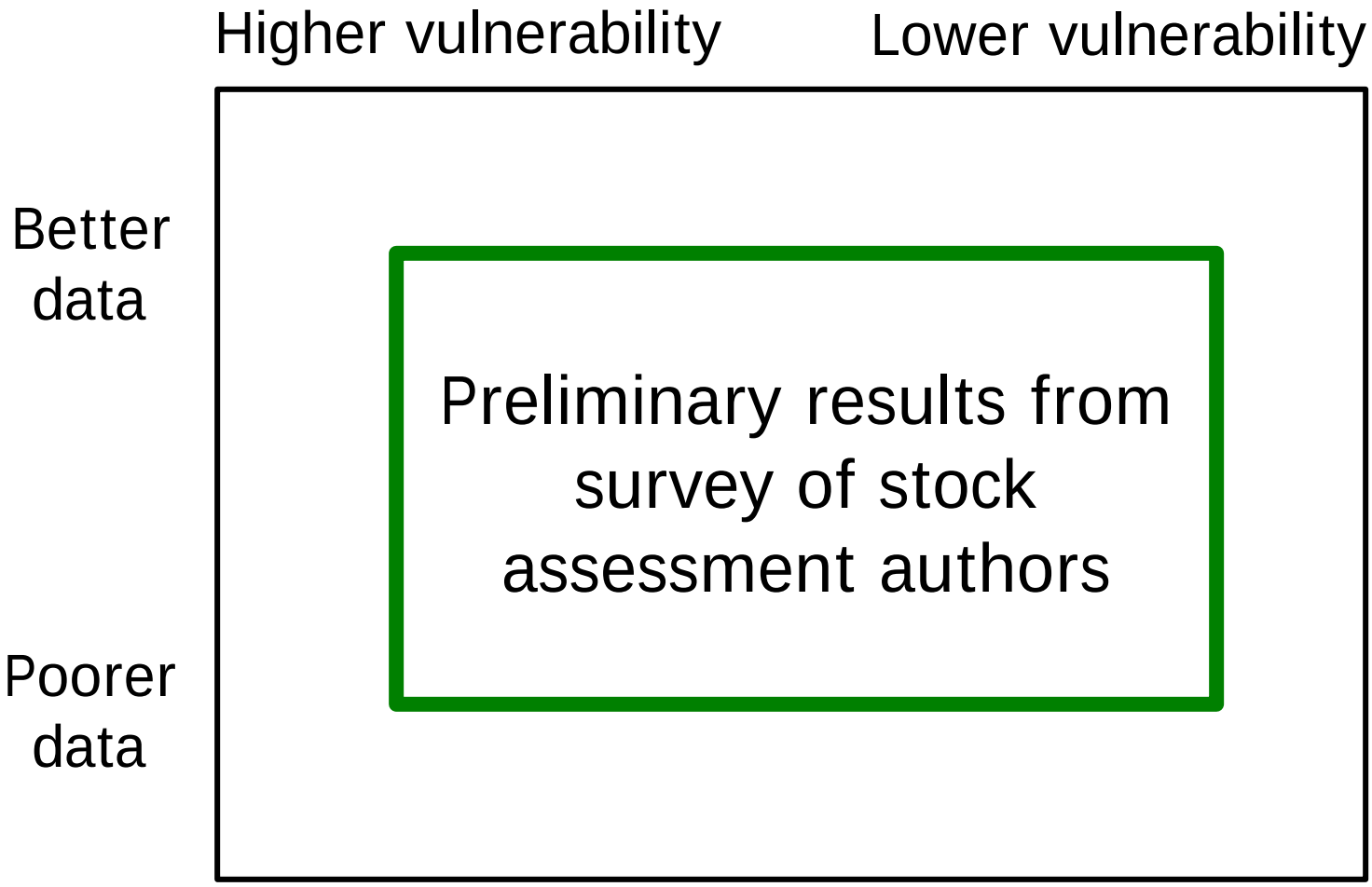
Defining “data quality”

- Survey data
  - Cover entire range of species (temporally and spatially)?
  - Survey cv within desired range (suggestion: 0.3 or less?)
  - Biological collections (age, length, maturity, fecundity)
- Fishery data
  - Adequate species identification in fishery catch?
  - Adequate observer coverage of fishery catching species?
  - Biological collections (age, length, maturity, fecundity)
- Life history data
  - Estimates of vital parameters exist? Based on what?
    - M, maximum age, age and size at maturity, fecundity
    - Estimated from the population(s) in the FMP area? Recently?

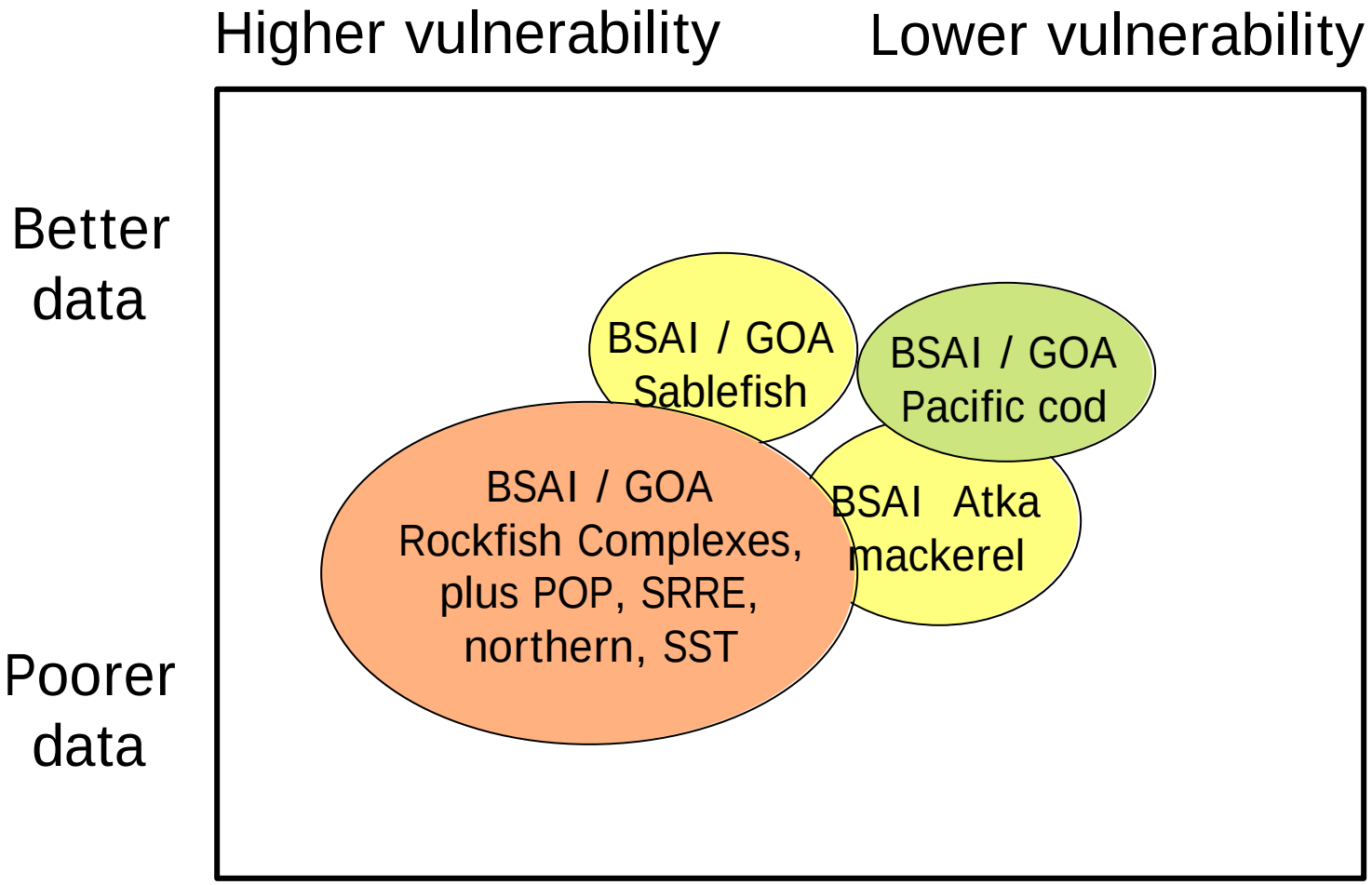
Defining “vulnerability”

- Defined by the ad hoc group as follows
  - Long lived, slow growing / maturing, low fecundity species
  - Specific habitat association and / or restricted range
  - Present or potential future economic value
  - Consistently associated / caught with abundant target species
- Evaluating data quality (life history data) for currently managed species allows relative vulnerability ranking
- Quantitative methods for ranking vulnerability introduced by Jennings et al 1998, 1999; used by Frisk et al 2001 for elasmobranchs to guide management

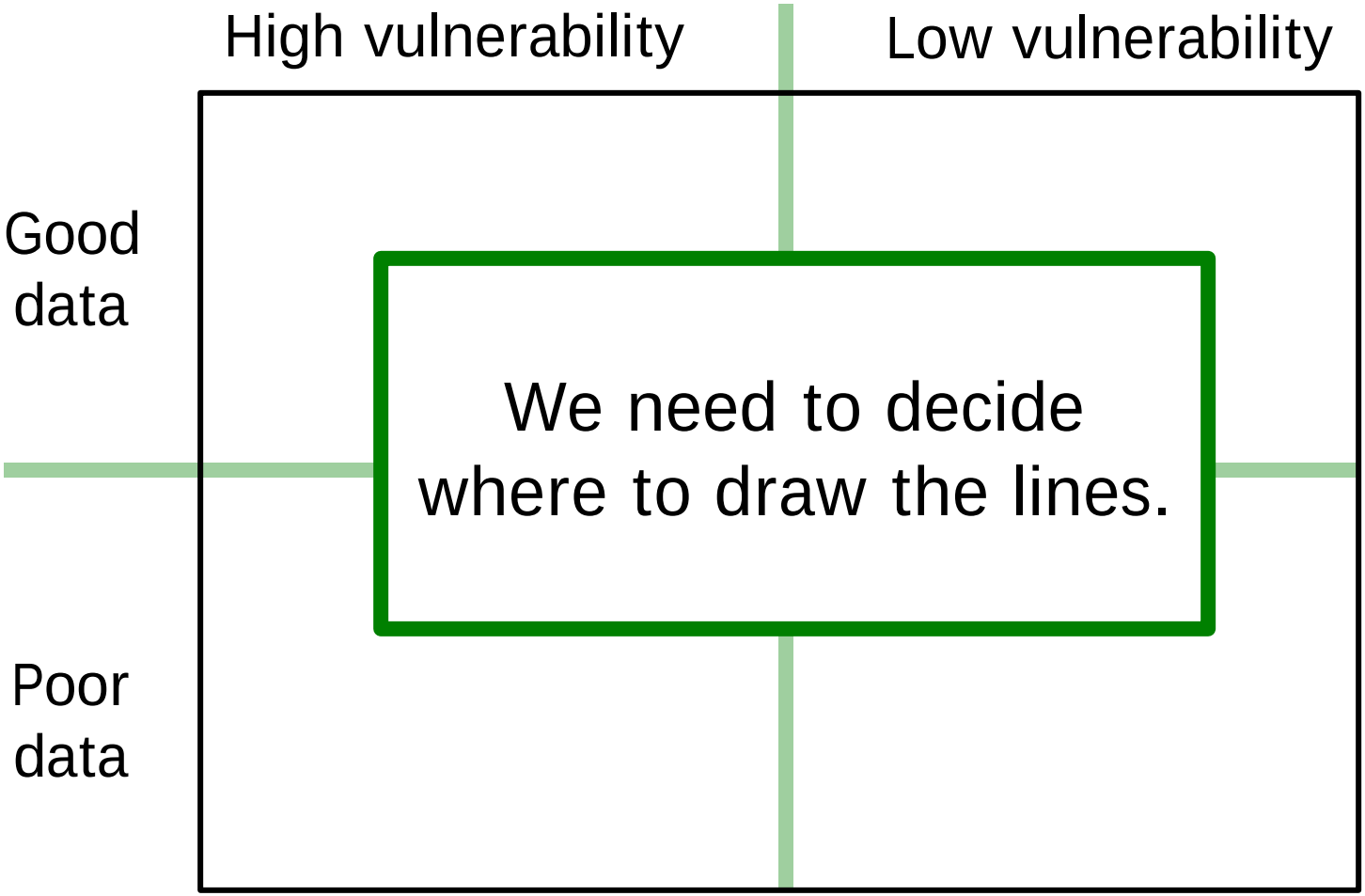
Empirical data—no lines drawn yet!



Preliminary qualitative review—not done...



The next step for the committee...



A work in progress

The committee lumped...

All species we mean to catch

All species we DON'T mean to catch (but still do)

Because there are different management objectives within these categories,
We apply different management tools

First name them to distinguish from what we have now

The committee lumped...

Management objective:

Optimize sustainable yields

Management objective:

Protect from fishing effects

Then the committee split...

Intended targets

- Managed with *single species* ABC, TAC, OFL
- Data quality allows assessment at Tier 3 or above (Tiers 4-6 phased out)
- No complexes allowed in this category (except*)

Who is in this category?

Pollock, Pacific cod, Sablefish, Atka mackerel,
Rock sole*, Yellowfin sole, Flathead sole, Dover sole, Rex sole, Greenland turbot,
Pacific Ocean perch, Shortraker rf, Rougheye rf*, SS Thornyheads, Yelloweye rf,

Then the committee split...

- No directed fishing allowed
- Managed with Maximum Retainable Allowance (MRA)

- Divided into two further categories:
  - Monitor only
  - Monitor with additional management measures

Incidental species

Who is in this category?

Everything not listed as a target...
Real bycatch complexes (observed to be caught together) are allowed

Criteria for the major division:

- Is it actually caught in the groundfish fishery?
  - Threshold of x% of observed catch to get on the radar
  - Monitoring will allow us to add species for consideration
- Is it retained and landed (as other than fishmeal)?
  - Threshold of y% retention and landing
  - Market currently exists
- Do people want to catch it?
  - If we did not restrict fishing would they target it?

- Things people want to catch are on the list.
- Things people keep but are secondary are not considered targets till they reach the retention/landings threshold. Unless they say they want to keep little bitty amounts of something.